

1. A method for jointly adapting power and data transmission rate in a wireless network, comprising:

- setting a transmission rate for a mobile station;
- measuring a signal quality for the mobile station;
- adjusting, if necessary, a transmission power level towards a power control target associated with the transmission rate; and
- adjusting, if necessary, the transmission rate for the mobile station based upon signal quality measured over a period of time.

2. The method according to claim 1, further including decreasing the transmission power by a first down amount if the measured signal quality is less than the power control target.

3. The method according to claim 2, further including increasing the transmission power by a first up amount if the measured signal quality is greater than the power control target.

4. The method according to claim 3, further including maintaining the transmission power at its current level if the measured signal quality is not less than or greater than the power control target.

5. The method according to claim 1, further including determining an average signal quality level over the period of time.

6. The method according to claim 5, wherein the period of time corresponds to a frame and the average signal quality corresponds to an average SINR level.

7. The method according to claim 5, further including incrementing a rate adaptation counter if the average signal quality is greater than or equal to a predetermined low threshold for the current transmission rate.

8. The method according to claim 7, further including decrementing the rate adaptation counter if the average signal quality is less than the predetermined low threshold for the current transmission rate.

9. The method according to claim 5, further including updating the transmission rate based upon the average signal quality.

10. The method according to claim 8, further including updating the transmission rate based upon the rate adaptation counter.

11. The method according to claim 10, further including updating the transmission rate for the next frame.

12. The method according to claim 11, further including updating the transmission rate to a minimum of the current transmission rate plus a first predetermined amount and a maximum supported transmission rate based upon a comparison of a value in the rate adaptation counter and a predetermined up threshold.

13. The method according to claim 12, further including updating the transmission rate to a maximum of the current transmission rate minus a second predetermined amount and a predetermined minimum transmission rate.

14. The method according to claim 11, further including delaying data transmission to the mobile station by setting the transmission rate to zero.

15. The method according to claim 12, further including maintaining the current transmission rate based upon the value in the adaptation counter.

16. The method according to claim 15, further including repeating the measuring of signal quality, the updating of the transmission rate, and adjusting the transmission power.

17. A method for adapting transmission power and transmission rate in a wireless network, comprising:

measuring a link quality of a first link in the wireless network;

decreasing a current transmission power for the first link if the measured link quality is greater than a target link quality associated with a current transmission rate;

increasing the current transmission power for the first link if the measured link quality is less than the target link quality associated with the current transmission rate;

maintaining the current transmission power for the first link if the measured link quality is not less than or greater than the link quality associated with the current transmission rate;

determining an average link quality measure at predetermined intervals;

incrementing or decrementing a counter value based upon a comparison of the average link quality measure and a predetermined threshold; and

increasing or decreasing the current transmission rate for a next one of the predetermined intervals.

18. The method according to claim 17, wherein the predetermined intervals correspond to frames.

19. The method according to claim 17, further including incrementing, decrementing or maintaining the current transmission rate for the next one of the predetermined intervals.

20. The method according to claim 17, further including selecting delaying transmission to a user by setting the current transmission rate for the next of the predetermined intervals to zero.